Dec. 27, 1932. J. E. LEE 1,892,154

PRINTING PRESS

Filed Aug. 5, 1930 2 Sheets-Sheet 1

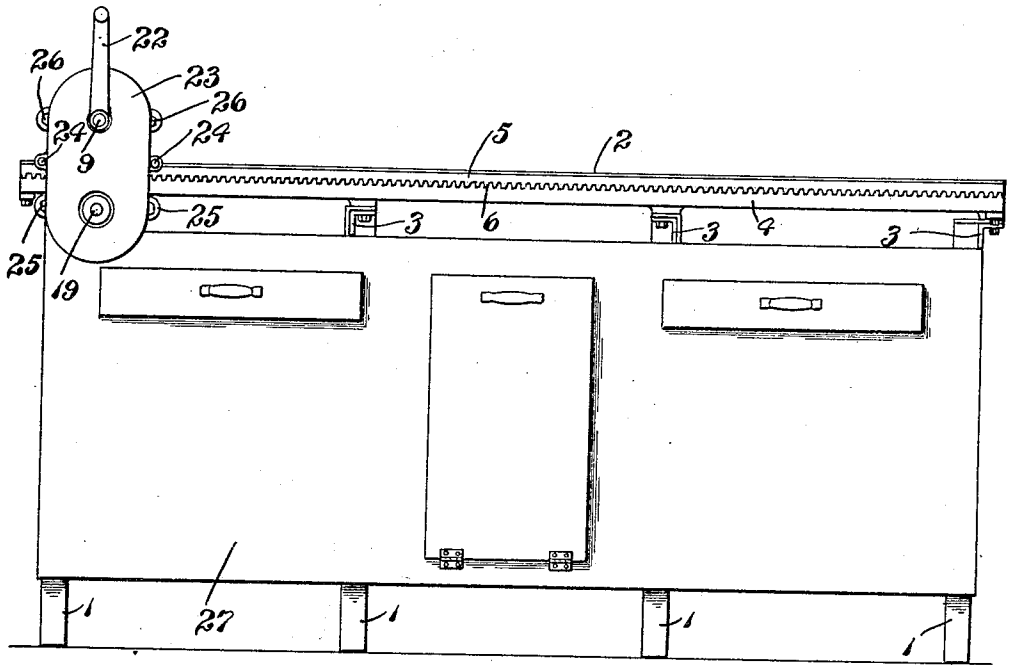


Fig. 1.

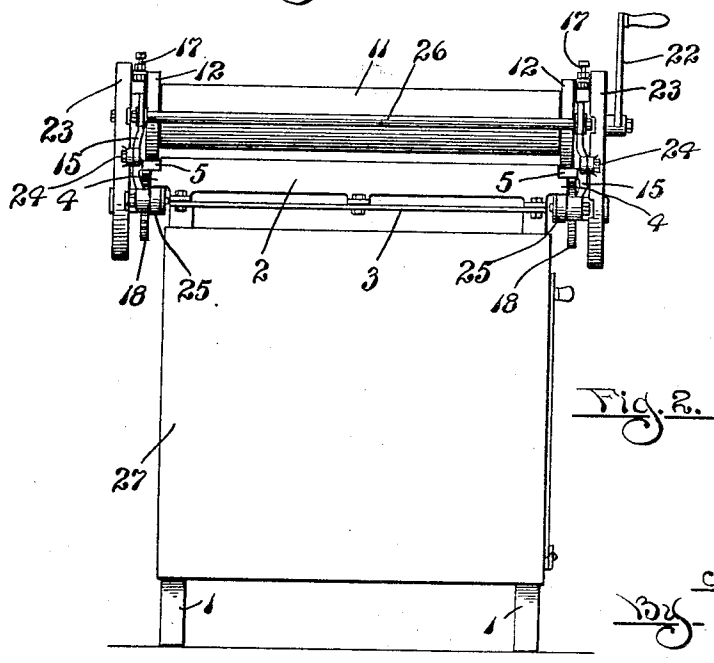


Fig. 2.

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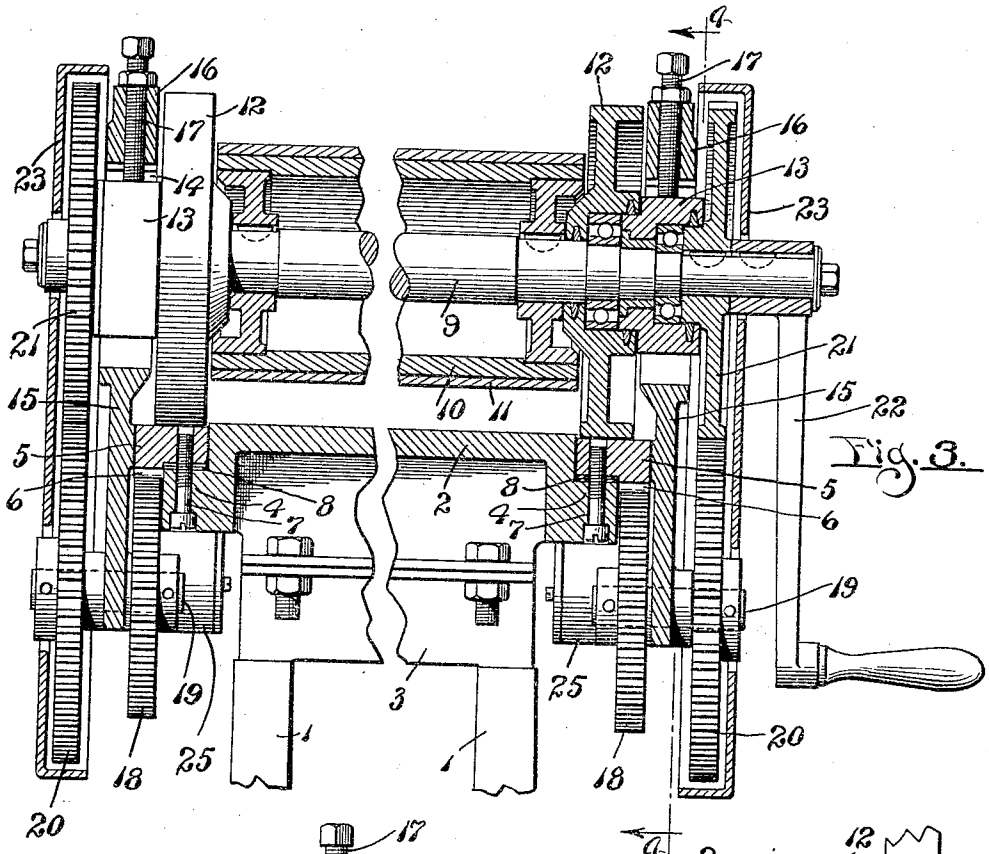


Fig. 3.

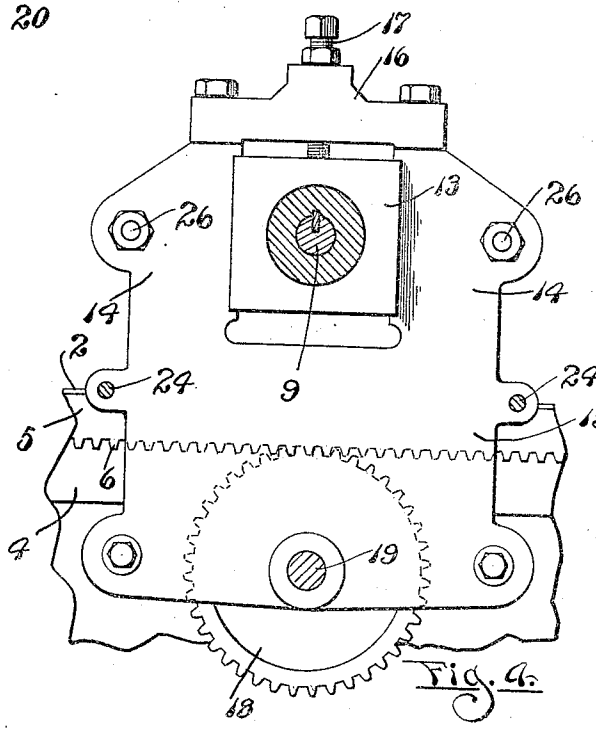


Fig. 4.

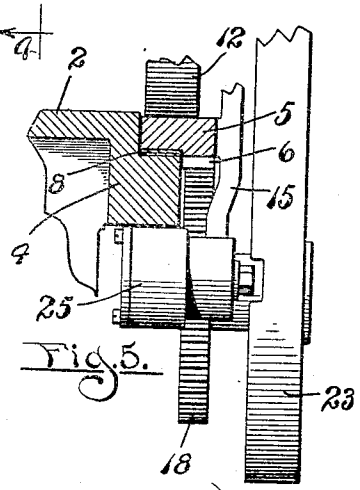


Fig. 5.

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UNITED STATES PATENT OFFICE

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PRINTING PRESS

Application filed August 5, 1930. Serial No. 473,152.

This invention relates to printing presses, and in one of the places of its use, more particularly to imposing surface printing presses in which proofs may be printed or a limited quantity of printed copies produced such as in printing a number of menus. The invention in many of its aspects however, is not limited to either proof presses or presses for printing a small or limited number of copies, though in the illustration shown in the drawings it is particularly for a machine used for proof printing.

In proof printing and also in printing menus or other similar reproductions the type set-ups locked in chases may be placed upon the table or imposing surface of the press, inked, and paper placed over the type and a presser or platen roller mounted on a carriage moved over the table and over the paper, pressing it against the type for producing the desired proof. It is very desirable that the type set-ups may be placed on the table or imposing surface from the sides of the table and likewise removed therefrom particularly, as in many instances, a number of chases may be printed at once; and when the number of copies from one of the same has been reached it can be removed from the table and another put in its place without disturbing the others on said table, this most conveniently being done by taking the same from and placing another on the table at its sides and not at one end as has been heretofore necessarily done.

Heretofore, at each longitudinal side edge of the table, bearers, one at each side, have been used, the upper surfaces of which are located a distance above the upper face of the imposing surface. This makes it very difficult, and in some cases impossible, to remove the type set-ups in their chases from or put them on the table at the sides thereof, there being one end only of the table free for such removal or placing on said table. Furthermore, the carriage which carries the presser or platen roller is operated over and lengthwise of the table through a rack and gearing construction, the racks being one at each side of the table, and these previously have been made with the rack teeth extending upwardly and usually with the pitch line of the rack teeth in the plane of the top of the bearers, whereby the teeth extend above said bearers and interfere with side removal or placement of the type set-ups and also are liable to cause injuries of workmen.

It is a primary object and purpose of the present invention to provide a printing press in which the bearers are disposed either in the same plane or a short distance below the plane of said upper imposing surface of the table, and to reverse the position of the racks so that the rack teeth extend downwardly and in this way eliminate dangers to workmen and make it simple and easy to remove or place the type set-ups on the imposing surface at both sides of the table or at one end thereof which are available for such removal or placement. A further object of the invention is to provide a very practical and efficient construction for attaining the objects stated and one which has proved very practical in service.

An understanding of the invention may be had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a side elevation of the machine of my invention.

Fig. 2 is an end elevation thereof.

Fig. 3 is a fragmentary enlarged vertical section taken transversely through the platen roller carriage.

Fig. 4 is a vertical section substantially on the plane of line 4—4 of Fig. 3, looking in the direction indicated by the arrows, and

Fig. 5 is a fragmentary transverse vertical section taken at one side of the machine adjacent and looking toward the roller carriage.

Like reference characters refer to like parts in the different figures of the drawings.

In the construction, a supporting frame including a plurality of vertical legs 1 is used to carry the table 2, the upper surface of which is in a horizontal plane and is the imposing surface of the press. The table is connected to cross angle bars 3 by bolts or other suitable fastenings which in turn are secured to the upper ends of the posts 1. The table 2, at each longitudinal side edge, is down-

wardly recessed or rabbeted above a thickened shoulder or ledge 4, and rack bars 5, having downwardly extending rack teeth 6, are located one at each side of the table, partly above the ledges 4 and partly extending outwardly beyond the outer vertical sides thereof, and studs 7 thread into each rack bar after passing through the ledge portion 4. Shims 8 may be disposed between the ledges 4 and the undersides of the bars 5 for the purpose of raising or lowering said bars as may be necessary at times as will later appear.

The upper surfaces of the bars 5, as shown in Fig. 3, are in a plane slightly below the upper surface of the table 2 but, if desired, such upper surfaces may be in the same plane. The bars 5 form the bearers for carrying the roller carriage as will hereafter appear, said bars previously having their upper portions extending above the upper imposing surface of the table 2.

In the construction of the presser roller or platen mechanism a horizontal shaft 9 carries a roller 10 which is covered with a suitable covering 11 in the usual manner. Bearing rollers or wheels 12 are mounted on the shaft 9 at each end of the presser roller 10 and ride upon the bearers 5. The shaft 9 has several reductions in size toward its ends for roller bearings and the like mounted thereon for the bearing rollers 12 and various other parts which are mounted on the shaft. Beyond each of the bearing rollers 12 are blocks 13, one at each end of the shaft, through which the shaft 9 extends and which are guided between upwardly extending spaced apart arms 14 of vertical plates 15. The upper ends of the arms 14 are connected by cross bars 16 and adjusting set screws 17 thread downwardly through the bars 16 against the upper sides of the blocks 13.

The plates 15 extend downwardly alongside the bearers 5 and below the same. Gears 18 are mounted on shafts 19 which extend through the plates, the gears 18 being at the inner sides of the plates 15 and in mesh with the racks 6. On the outer ends of the shafts 19 other gears 20 are mounted which mesh with gears 21, thereover, keyed to the shaft 9. The shaft is adapted to be manually turned by a crank 22 secured to one end thereof. The gears 21 and 20 are covered by any suitable sheet metal shields 23 as shown. The shields are bolted by means of bolts 24 to the plates 15. At the lower corners of the plates 15 rollers 25 are mounted which ride underneath the ledge portions 4 of the table. Rods 26, one back and one in front of the platen roller, extend between the plates 15 connecting them together.

It is evident that on turning the crank 22 the gears 18 are simultaneously and equally driven and, engaging with the racks 6, carry the carriage over the imposing table 2, the rollers or wheels 12 bearing upon the bearer bars 5. The distance between the upper imposing surface of the table 2 and the lower sides of the platen roller is such that set-ups of type or the like may be placed on and above the table 2, inked, and paper placed over the type, whereupon the roller, when it is rotated and moved with the carriage, on passing over the paper, presses it into firm contact with the inked type and printing upon the paper is done. The adjusting and set screws 17 may be used to properly adjust the gears 18 into proper engagement with the rack 6. The shims 8 may be increased or diminished in number in order that there shall be the necessary proper pressure of the platen roller against the paper to get the right type impression.

With this construction of press a proof sheet is readily obtained without need of dampening the paper and any corrections may be made in a type set-up while it is still carried on the imposing surface; and the form, after complete correction, may be transferred from the table to a regular printing press for reproduction of the desired number of copies. Or, as happens in many cases, where only a limited number of copies are wanted, all of said copies may be printed on the press described without resort to any other printing press. If the number of copies for one set-up on the table is finished before that of other set-ups thereon, it can be readily removed and another put in its place, this by reason of the fact that the bearer bars 5 are not above the upper imposing surface of the table 2.

The downward extension of the rack teeth 6 is also a very desirable feature of the present invention. If the mechanism is built with the rack teeth at the lower sides of the bars 5 there is no danger of injury to those working around the press, as happens many times with other presses wherein the rack teeth extend upwardly and the operators of the press leaning or working across said teeth have had arms scratched and bruised thereby. The lowering of the upper surfaces of the bearer bars 5 a short distance below the upper surfaces of the table 2 also permits a printer's galley to be placed at its open end against the shoulders at the sides of the table 2 above the bearer bars 5, placing the bottom of the galley in the same plane with the upper imposing surface of the table 2, so that type may be quickly moved from one to the other. The lower supporting structure may be covered and housed by sheet metal plates 27, if desired, and this is usually done.

This invention is conceived as being applicable to various specific embodiments other than that herein shown and described. It is unimportant whether the device is actuated manually or by the application of mechanical power. Furthermore, it is conceived that more simple arrangements may be utilized

in which the gearing, to cause positive rotation of the platen roller relative to the traverse of the carriage, may be omitted and it is also conceived that the carriage itself may be omitted and the platen roller merely supported in elevated position above the table by the supporting rollers 12 in which case the weight of the platen roller and other parts of the structure would exert the necessary printing pressure.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A printing press including a table having a flat upper surface, bearer bars located one at each side of the table formed with rack teeth at their lower sides, a platen roller carriage mounted to traverse said table and having wheels bearing upon the upper sides of said bearer bars, said upper sides of the bearer bars being located in a plane not higher than the upper surface of the table, means for turning the roller and gearing connected with the roller and operable simultaneously therewith meshing with the rack teeth on said bearer bars.

2. In a printing press, a table and a platen roller carriage, said table having a horizontal flat upper imposing surface and a bearer bar secured one at each longitudinal side edge of the table having upper sides in a plane not higher than said imposing surface and formed with rack teeth at their lower sides, a shaft included in said carriage, a platen roller fixed on the shaft, wheels rotatably mounted on the shaft at the ends of the roller bearing upon said bearer bars, and gearing connected with and driven by said shaft meshing with said racks on the bearer bars, for the purposes described.

3. A printing press including a horizontal table having a flat upper imposing surface, said table at each longitudinal side edge thereof having longitudinal rabbets below which are outwardly extending ledges, bars secured one at each longitudinal side edge of the table and located in said rabbets, and having portions extending outwardly and formed at their lower sides with rack teeth and means for securing said bars and table together with the upper sides of said bars located in a horizontal plane not higher than the upper side of the table.

4. A printing press comprising, a longitudinal table having an upper horizontal imposing surface, bars secured one at each longitudinal side edge of the table having flat upper surfaces located in a plane not higher than the upper surface of the table and having rack teeth on their lower surfaces, a roller carriage comprising a horizontal cross shaft above the table, a platen roller mounted on said shaft, wheels on said shaft riding on the upper sides of said bars, vertical plates adjustably mounted on the shaft and extending downwardly one at the outer side of each of said bearer bars, a second shaft mounted at the lower portion of each plate, gears on said second shafts in mesh with the racks of said bearer bars, and gearing connections between the roller shaft and said second mentioned shafts.

5. A construction containing the elements in combination defined in claim 4, said table at each side thereof having a downwardly extending portion forming a ledge above which the bearer bars are located, each of said downwardly extending portions of the table having horizontal under surfaces, and rollers mounted at the lower portion of said plates extending under and bearing against the under sides of said downwardly extending side edge portions of the table.

6. A construction containing the elements in combination defined in claim 4, wherein the means for adjustably mounting said plates on the roller shaft comprises, blocks through which said shaft passes one at the outer side of each of said wheels, said plates being divided at their upper portions to slidably receive said blocks, bars connecting the upper ends of said divided portions of the plates, and adjusting screws threaded through said bars against the upper sides of said blocks.

7. A printing press including a table having a flat upper surface, bearing surfaces associated with said table and located in a plane no higher than the top surface of said table, a platen roller, and bearing rollers at the respective ends of said platen roller rotatable relative thereto, said bearing rollers being of greater diameter than the platen roller and said bearing rollers being traversably mounted on said bearing surface whereby the platen roller is rotatably supported and traversably mounted spaced above the top surface of said table.

8. A printing press including a table having a flat upper surface, bearing surfaces associated with said table and in a plane no higher than the top surface of the table, a platen roller, supporting means traversably mounted on said bearing surfaces and rotatably supporting said platen roller in a position elevated above the top of said table, means associated with said supporting means and said table to prevent upward movement of the roller relative to said table, and means for positively rotating said platen roller.

9. A printing press including a table having a flat upper surface, bearing surfaces associated with the table and in a plane no higher than the top of the table, a platen roller, a frame at each end of the platen roller and rotatably supporting said platen roller in a position elevated above the top of the

table, means traversably mounted upon said bearing surfaces for supporting the respective frames, means engageable with the table to prevent upward movement of the respective frames, and means for positively rotating said platen roller.

In testimony whereof I affix my signature.

JAMES EDGAR LEE.